

associating the location of the cursor in the display screen with a contact location on a touch screen; and

providing haptic feedback by way of the touch screen as long as the location of the cursor on the display screen assumes a predetermined relationship with the location of the graphical object on the touch screen.

15. The method of claim 14, wherein the predetermined relationship is coincidence of location.

16. The method of claim 14, wherein the touch surface is a touchscreen.

17. The method of claim 14, wherein the touch surface is a touchpad.

18. The method of claim 14, wherein said contact is effected by a body portion of an operator.

19. The method of claim 14, wherein said contact is effected by a stylus manipulated by an operator.

20. A method for providing haptic feedback representative of the extent to which an action triggered by manipulation of a cursor relative to a graphical object displayed on a display screen is occurring comprising:

associating the location of the cursor in the display screen with a contact location on a touch screen; and

providing haptic feedback by way of the touch screen, said haptic feedback having an extent corresponding to the extent of the action.

21. The method of claim 20, wherein the action is scrolling.

22. The method of claim 20, wherein the haptic feedback is based on a repetitive waveform whose frequency increases corresponding to the extent of the action.

23. The method of claim 20, wherein the touch surface is a touchscreen.

24. The method of claim 20, wherein the touch surface is a touchpad.

25. The method of claim 20, wherein said contact is effected by a body portion of an operator.

26. The method of claim 20, wherein said contact is effected by a stylus manipulated by an operator.

27. A method for providing haptic feedback in response to a manipulation of a graphical object, comprising:

correlating a characteristic of the manipulation of the graphical object with a characteristic of a contact of a touch screen; and

imparting a force to the touch screen at an extent which varies in accordance with the characteristic of the manipulation.

28. The method of claim 27, wherein imparting a force comprises:

generating a first signal in response to the contact;

transmitting the first signal to a processor;

creating a haptic output current signal in response to said first signal;

carrying said haptic output current signal to an actuator arranged to create relative motion between a first structural element and a second structural element thereof, the first structural element mechanically coupled to the touch surface and the second structural element mechanically coupled to a display device or a housing structure; and

causing a haptic effect by actuating the actuator.

29. A method of claim 27, wherein moving comprises:

generating a first signal in response to the contact;

transmitting the first signal to a processor;

creating a haptic output current signal in response to said first signal;

carrying said haptic output current signal to an actuator arranged to create relative motion between a first structural element and a second structural element thereof, the first structural element mechanically coupled to the touch-sensitive panel and the second structural element mechanically coupled to a display device or a housing, wherein the actuator further includes:

a first biasing element coupling the first structural element to the second structural element;

a first magnetic device carried by the first structural element, the first magnetic device including a first pole piece;

a second magnetic device carried by the second structural element, the second magnetic device including a second pole piece; and

a first coil disposed about at least one of said first pole piece and said second pole piece;

wherein the first biasing element is arranged to provide a biasing force opposing an attractive magnetic force urging the first and second pole pieces together when current is applied to the first coil; and

causing a haptic effect by actuating the actuator.

30. The method of claim 27, wherein the characteristic of the manipulation is one or more of speed, acceleration, or deceleration.

31. The method of claim 30, wherein the imparted force is repetitive and increases in frequency and/or magnitude with said one or more of speed, acceleration or deceleration.

32. The method of claim 27, wherein the imparted force is repetitive and increases in frequency and/or magnitude based on the characteristic of the manipulation.

33. The method of claim 27, wherein the graphical object assumes multiple forms, and the characteristic of said manipulation is the rate at which said forms are assumed.

34. The method of claim 33, wherein the imparted force is repetitive and increases in frequency and/or magnitude based on said rate.

35. The method of claim 27, wherein said graphical object is a scroll bar.

36. The method of claim 27, wherein said characteristic of a contact is the location of the contact.

37. The method of claim 27, wherein said characteristic of a contact is pressure imparted by the contact.

38. The method of claim 27, wherein said characteristic of a contact is a rate of change of contact position.

39. The method of claim 27, wherein said characteristic of a contact is a rate of change of contact speed.

40. The method of claim 27, wherein said characteristic of a contact is a rate of change of contact location.